REMARKS

Claims 1-20 are pending. Claims 1-20 stand rejected. Claims 1, 2, 8, 13, and 14 are independent claims.

Claim 1 stands rejected under 35 U.S.C. 112, second paragraph, for allegedly failing to specify which amplification medium "amplifies an input signal light having a same wavelength as that of the gain." In response, applicant has amended the claim to recite "the single mode fiber is adapted to provide a gain from a longer wavelength side distanced by about 100nm from a wavelength of the pumping light and to amplify an input signal light having a same wavelength as that of the gain." Applicant submits that claim 1, as amended, specifies clearly that the single mode fiber amplifies the input signal having a same wavelength as that of the gain. Accordingly, applicant respectfully request removal of this rejection on claim 1.

Claim 2 stands rejected under 35 U.S.C. 112, second paragraph, for allegedly failing to clarify the clause "and subsequently in which a signal light in which gain appears is incidented into the excited optical fiber for amplification."

Applicant wishes to thank the Examiner for indicating that claims 2-7 are allowable if they are rewritten to comply the requirements of 35 U.S.C. 112, second paragraph. In response, applicant has amended the portion to recite "and in which a signal light that the gain appears is subsequently incidented into the excited optical fiber for amplification." The support for the amendment can be found at page 3, line 6-11. Applicant submits that claim 2, as amended, is clear, and therefore complies with 35 U.S.C. 112, second paragraph requirement. Accordingly, applicant respectfully requests early passage of the claims.

Claim 8 stands rejected under 35 U.S.C. 112, second paragraph, for allegedly implying that Raman amplification occurs at the semiconductor amplifier. In response, applicant has amended the claim to recite that a semiconductor optical amplifier is "for amplifying a signal light that is Raman-amplified in the optical fiber..." Applicant submits that claim 8 recites clearly that Raman amplification occurs at the optical fiber. As such, applicant respectfully requests withdrawal of this rejection on claim 8.

Claim 14 stands rejected under 35 U.S.C. 112, second paragraph, for implying that the signal light has the same wavelength as a pumping light. In response, applicant has amended the clause (d) of claim 14 to recite "an input signal light to the fiber having a same wavelength as that of the gain from the pumping light for amplification." Applicant submits that clause (d) of claim 14, as amended, clearly recites that the input signal light has the same wavelength as that of the gain, not pumping light. As such, applicant respectfully requests removal of this rejection.

Claim 1 stands rejected under 35 U.S.C. ' 103(a) as allegedly being obvious over Lee (U.S. Pub. 2003/0090779 A1) in view of Miyakawa (E.P. 1,168,530 A2).

Claim 1, as amended, recites, *inter alia*, "a single mode fiber adapted for receiving a pumping light; a semiconductor optical amplifier connected to an output of the single mode fiber for providing the pump light."

Support for the amendment can be found at Page 5, line 3-18. Present invention, as recited in claim 1, includes a single mode fiber, or a Raman amplifying fiber, that receives a pump light provided by a semiconductor optical amplifier (Page 5, line 3-18). According to the specification, the pump light is used by the single mode fiber to Raman amplifies the signal light

(Id.). By having the semiconductor optical amplifier providing a pump light to the single mode fiber for Raman amplification, the present invention does not require a separate pumping laser diode (Id.; See also page 11, line 11-15).

Lee, as read by applicant, discloses a number of hybrid amplifiers with differently arranged semiconductor optical amplifiers and Raman amplifiers. However, nowhere in Lee is there a disclosure that the semiconductor optical amplifiers provide a pump light to the Raman amplifying fiber, as recited in claim 1. On the contrary, Lee teaches that the pump light is provided by laser diodes (Figure 2-8 and 10; see also 0034). As such, Lee fails to teach a semiconductor that provides pump light to the Raman amplifying fiber.

Miyakawa, as read by applicant, merely discloses a system that improves the signal-to-noise ratio of a Raman amplifier (0002). However, nowhere does Miyakawa disclose a semiconductor optical amplifier, much less a semiconductor optical amplifier that provides a pump light to the Raman amplifying fiber. Moreover, Miyakawa teaches that the pump light is provided by a laser diode (Figure 1). Accordingly, Miyakawa also fails to teach a semiconductor optical amplifier that provides pump light to the Raman amplifying fiber.

Failing to teach all features of claim 1, Lee and Miyakawa, alone or in combination, fail to render claim 1 obvious. Accordingly, applicant respectfully requests withdrawal of this rejection on claim 1.

Claim 8 stands rejected under 35 U.S.C. ' 102(e) as allegedly being anticipated by Lee.

Claim 8 recites, *inter alia*, that a gain-clamped semiconductor optical amplifier amplifies "a signal light that is Raman-amplified in the optical fiber by laser oscillation using a distributed Bragg reflector (DBR) lattice." Applicant submits that such a signal light is not found in Lee.

As noted above, Lee discloses systems that Raman amplifies an incoming optical signal in a transmission optical fiber using a pump light provided by a laser diode (0034). However, nowhere in Lee is there a disclosure that the optical signal has been Raman-amplified by laser oscillation using a distributed Bragg reflector ("DBR") lattice. In particular, nowhere does Lee teach its pumping laser diode or its Raman amplifying fiber contains distributed Bragg reflector lattice so that Raman amplification of the signal light can occur at the fiber by laser oscillation using the distributed Bragg lattice. As such, applicant submits that Lee fails to anticipate all features of claim 8, and applicant respectfully requests withdrawal of this rejection on claim 8.

Claim 13 stands rejected under 35 U.S.C. ' 103(a) as allegedly being obvious over Lee in view of Miyakawa.

Claim 13, as amended, recites, *inter alia*, "a single mode fiber adapted for supplying a pumping light." As noted in the specification, asymmetrical distributed Bragg reflector lattice, lattice that provides the pumping light, may be implemented to the single mode fiber (Page 10, line 19-21). As such, a pumping light necessary to perform Raman amplification may be provided by the single mode fiber, and a separate pumping light source may be unnecessary (See page 10, line 19 – page 11, line 15).

Applicant submits that neither Lee nor Miyakawa teaches a Raman amplifying fiber that provides a pump light. As noted above, both references teaches that pump light is provided by laser diodes connected to the Raman amplifying fiber (See Figure 2-8, and 10 of Lee; see also Figure 1 of Miyakawa). As such, Lee and Miyakawa, alone or in combination, fail to show or teach a single mode fiber, a Raman amplifying fiber, that provides pump light necessary for Raman amplification. Applicant respectfully requests withdrawal of this rejection on claim 13.

Claim 14 stand rejected under 35 U.S.C. ' 102(e) as allegedly being anticipated by Lee. Applicant respectfully traverses the rejection.

Claim 14, as amended, recite, *inter alia*, providing "an optical fiber for receiving a pumping light... a semiconductor optical amplifier connected to an output of the fiber that supply the pump light." Applicant submits that such features are similar to those included in claim 1, and the features' distinctions over Lee are described in applicant's response to 35 U.S.C. ' 103(a) rejection on claim 1. Applicant believes that claim 14 overcome Lee for the same reason as in claim 1, and applicant respectfully requests withdrawal of this rejection on claim 14.

Other claims in this application are each dependent on the independent claims 1, 2, 8, 13, and 14, and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.

The applicants submit that the claims, as they now stand, fully satisfy the requirements of 35 U.S.C. 112, 102 and 103 and 103. In view of the foregoing amendments and remarks, favorable reconsideration and early passage to issue of the present application are respectfully solicited.

Should the Examiner deem that there are any issues which may be best resolved by telephone, please contact Applicant's undersigned representative at the number listed below.

Respectfully submitted,

Steve Cha
Registration No. 44,069

By: Steve Cha
Attorney for Applicant
Registration No. 44,069

Date: September 12, 2005

Mail all correspondence to:
Steve Cha, Registration No. 44,069
Cha & Reiter
210 Route 4 East, #103
Paramus, NJ 07652
Tel: 201-226-9245
Fax: 201-226-9246

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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)

(Signature and Date)